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ON SPORADIC CRETINISM IN AMERICA.¹

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THE studies which have given to the thyroid gland the dignity of an organ with diseases of capital importance have come from practising physicians, experimental physiologists, and from surgeons: studies which, "fitly joined together," have not only made clear some dark problems in pathology, but also have raised a reasonable hope in the treatment of a group of hitherto hopeless disorders.

A relation between myxœdema proper and cretinism was hinted at by Gull in the title of his paper (1873) "On a Cretinoid State Supervening in Adult Life in Women," and clearly appreciated by Ord, in 1877, in a fuller description of the disease, in which its connection with abnormal states of the thyroid gland was recognized. The remarkable cachexia found by the Swiss observers, Reverdin and Kocher, to follow certain cases of total extirpation of the thyroid, and the brilliant studies by which Horsley demonstrated the existence of an experimental myxœdema, threw a flood of light on the whole subject, and enabled the committee of the Clinical Society of London, in 1888, to reach the following conclusions: "That there is strong evidence that myxœdema, sporadic cretinism, endemic cretinism, cachexia strumipriva, and the operative myxœdema of animals are severally species of one genus; that such clinical differences as exist between them are due to causes already sufficiently set forth; and that the one pathological fact common to all these conditions is the occurrence of morbid processes or of operations involving the annihilation of the function of the thyroid body."²

Having had at my clinic within a comparatively short space of time three cases of cretinism, and knowing that the subject of myxœdema was to be presented at this meeting, I thought the matter of sufficient interest to inquire as to the prevalence of the disease in this country. The report here made is based upon a careful search of the literature so far

¹ Read before the Association of American Physicians, May, 1893.

² Report of a Committee of the Clinical Society of London, to investigate the subject of Myxœdema. *Clinical Society's Transactions*, Supplement to vol. xxi. p. 199. London, 1888.

as it relates to the United States and Canada, and upon inquiries made of the superintendents of the Asylums for the Insane and of Institutions for Feeble-minded Children throughout the country, as well as of many friends.

As much misunderstanding exists as to the exact definition of a cretin, illustrated by the fact that at least one-half of the photographs sent me from different institutions did not belong to this type of idiocy, it may be well to define somewhat carefully the precise conditions to which this term should be applied. In the first place, there is no essential difference between the cases occurring in large numbers in goitrous districts and the sporadic cases. The term should be limited accurately to a form of idiocy associated with changes in or absence of the thyroid gland. The following statements are based upon the recent article of Horsley.¹ The important factor is the loss of the function of the thyroid gland, whether this results from congenital defect, progressive atrophy, or coarse changes which gradually annul its function.

1. *Congenital cretinism* is rare, and is usually associated with absence of the thyroid gland. The child rarely lives, but the changes presented are sufficiently distinctive for diagnosis. The supra-clavicular fatty tumors are well marked and the skin generally is thick and in folds. The limbs are short, the epiphyses swollen, while the shafts are much ossified. The skull is broad and short, the sutures open, and the basi-sphenoid junction is prematurely ossified, a point upon which Virchow laid great stress. This congenital variety may be difficult to distinguish from rickets. Degenerative changes, slow over-growth of the fibrous tissue, and a myxœdematous condition have also been met with.

2. *Ante-natal and subsequent slow development of cretinism.* Here the changes appear to have been initiated during foetal life, but are slight and scarcely noticeable at birth. "The infant shows no, or very slight, signs of intelligence, but the physical signs are less obvious. According to some, the majority at birth have a goitre, usually of about an inch in diameter; the body is large, with disproportionate head and hands, and, what is more important still in connection with the similarity to myxœdema, in many cases the subcutaneous tissues appear œdematous; occasionally, according to the severity of the case, there is also non-development of the facial bones, a flattened nose, giving a stupid appearance, and a large thick tongue. The neck is short and thick. It is obvious that under these circumstances we have the same condition as that described above, only much less severe; the further history of these cases shows that the destruction of the thyroid gland continues, and the symptoms develop into the worst form of cretinism, about to be described." (Horsley.)

¹ Take's Dictionary of Psychological Medicine: art. "Cretinism."

3. *Development of cretinism in early childhood.* The infant may be perfectly normal at birth, develop naturally, and show no signs of disease until from the second to the fifth year. A majority of the instances of sporadic cretinism belong to this division. "The child from being bright and normal becomes gradually less and less intelligent, and at the same time the physical appearances which have been summed up in the conditions before mentioned begin to assert themselves. The child does not increase in height, the limbs similarly do not lengthen, but remain short and thick. The trunk is broad and thick, there being also well-marked lordosis, so that the abdomen is prominent. In like manner the neck is shortened, the skull broad, the nose *retroussé*, the lips thick, and the teeth very imperfectly developed. The speech, from being clear becomes thick, the voice is rough and at times stridulous, the physiognomy is placid to stupidity, the skin is coarse, the hair becomes scanty and thin. There is well-marked anæmia; the subcutaneous tissues have a peculiar kind of spongy or waxy feel, as if there were, so to speak, solid œdema occupying the connective fibres of the tissues.

"The condition thus produced reaches its height usually by the end of fourteen or fifteen years, so that by the twentieth or twenty-first year it has attained complete development, and thenceforward remains perfectly stationary until death. Hence, at the age of thirty the physical appearance presented is that of a young child, and the intellectual condition similarly does not advance beyond that of childhood." (Horsley.) A majority of the cases of which I shall speak and which are illustrated in this paper belong in this division.

The adult condition of cretinism as seen in cases which have developed slowly, and have reached the age between twenty or thirty and over, is very characteristic. This "pariah of Nature," as it has been called, is a being degenerate both physically and intellectually; short in stature and childish in appearance. The height usually does not exceed that of a child from five to seven years old. The skin is often rough, sometimes brown and stained, but in the sporadic cases more frequently of a chalky earthy hue. In certain instances the subcutaneous tissues are much infiltrated, so that the skin has a curiously waxy hue. Supra-clavicular folds of a fatty and myxœdematous character are common. The hair may be thick, and is usually confined to the head, even in adults; but in some instances there are traces in the axillæ and on the pubes. The face has an aspect of dulness and stupidity, though sometimes in the sporadic cases it is bright and smiling. The lips are broad and thick and prominent; the nose is broad at the base; the nostrils wide; the alæ very broad and pass without any special division into the naso-labial fold. The eyes are widely separated and sometimes present strabismus. The eyelids are often œdematous. In

advanced cases, though they see things, yet they see without any intelligence, and the expression of the eyes adds very much to the impassive, immobile aspect. The tongue is often thick, large, and may constantly protrude from the mouth. The skull is large in proportion to the body and to the face. It is broad, brachycephalic, the transverse diameter approaching that of the antero-posterior. It is flattened in the forehead and frequently depressed and sloping backward. The two halves of the head are often asymmetrical. The sutures are often occupied by Wormian bones. The neck is large and short, and the thyroid gland may be enlarged or may be completely absent. The thorax is usually deformed in association with lateral or antero-posterior curvature of the spine. The abdomen is prominent and full. The limbs are extremely short, sometimes emaciated, occasionally deformed by rickets. The muscles are feeble, the hands and feet are large, the fingers thick and broad, and the nails often coarse and large, and may be rudimentary.

There are varying grades of cretinism, and just as we recognize complete idiocy, imbecility, and feeble-mindedness, so there have been described three degrees of this affection: cretins, which present in a most advanced degree the physical characteristics above mentioned, and are in addition deaf-mutes with the vegetative functions alone active; semi-cretins, with mental dulness, harsh guttural voice, expressionless countenance, and the physical condition similar to but less pronounced than that of the true cretin; and lastly, the cretinoid condition in which there is some degree of enfeeblement of the intelligence, speech somewhat impaired, and the physiognomy and physical conformation is that of the cretin.

The recognition of the condition of cretinism, though easy in advanced and typical cases, is often, I find, not clearly made: I judge this from the number of descriptive cases sent to me as instances of this condition, but which in reality have been cases of various forms of idiocy. The important criteria are the physiognomy, the shape of the head, the stunted growth, and the condition of the connective tissues. The mental deficiency is less characteristic, presenting nothing not seen in instances of ordinary idiocy. The condition of the thyroid is uncertain. There are cretins with and cretins without goitre, while in others the gland seems entirely absent. The most satisfactory diagnostic feature is the condition of the skin and connective tissues, which, as Horsley suggests in the following words, should form really the basis of the classification. "By excluding all cases in which the appearance of idiocy is not accompanied by any noteworthy changes in the skin or connective tissues we obtain a considerable delimitation of the condition which we ought to call cretinism, for by adopting such a plan of differentiation we necessarily leave out all cases due to direct injury or disease of the

central nervous system, and which are included in the conditions classed by various writers under different headings, such as congenital idiocy, idiocy following encephalitis, idiocy coupled with porencephaly, etc., all being cases where we have destructive lesions or non-development of the central nervous system, especially of the cerebral hemispheres, and in which, therefore, we have a simple and direct destruction of the intellectual mechanism. Although such conditions may be naturally accompanied by want of development in the parts of the body which may happen to be paralyzed, etc., still there is no direct or certainly no general change in the connective tissues throughout the whole system, and secondarily in the nervous system, such as furnishes the basis of the present classification."

The pathology of the disease requires to be studied in the light of the more recent researches. In endemic cretinism the thyroid gland is very commonly enlarged, but in all probability functionless, and the intimate relation of the condition to goitre, particularly the marked influence of heredity as shown in the fact that goitrous parents are more likely to have cretinous children, shows the close interdependence of cretinism upon conditions of the thyroid. In the sporadic cases the thyroid is usually absent, and in all probability the progressive changes in the connective tissues, including the bones, are associated in some way with the absence of the function of this gland.

HISTORICAL.—References to the existence of cretinism in America are found in Hirsch,¹ the *Dictionnaire Encyclopédique*² des Sciences Médicales, the *Nouveau Dictionnaire*, in the *Index-Catalogue of the Surgeon-General's Library*, and in the *Index Medicus*. Hirsch states that "Cretinism does not appear to be at all common except at a few points in all this region; at any rate it is stated by Barton that cases of it are rarely met with in the United States. Brown speaks of its occurrence in the valleys of Vermont; in Kneeland's account of the health of Massachusetts (for which State I have been able to learn nothing of the occurrence of goitre), it is stated that there are at least twelve hundred idiots and cretins in a population of about one million. Praslow has also observed somewhat frequent cases of cretinism among a tribe of Indians living near Cape Mendocino, in California, as well as among the Spaniards in the mountainous parts of Southern California." These statements of Hirsch pass current in various works; thus Bury, one of the latest writers on the subject, in the *Cyclopædia of the Diseases of Children*,³ says: "In North America cretinism is not common except at a few points, namely, in the valleys of Vermont, in Massachusetts, and in

¹ Handbook of Geographical and Histological Pathology, vol. ii. (New Sydenham Society's translation).

² Art. "Crétinisme," by Ballanger and Kreishaber.

³ Vol. ii., art. "Cretinism."

California." When we turn to the original sources for these statements, nearly all of which antedate 1850, we find, for example, the authority for the occurrence of the affection in Massachusetts the general statement of Kneeland,¹ that there are twelve hundred idiots and cretins in a population of one million. I can find no detailed observation in this article, and the term "cretin" was probably used in a loose way to indicate some variety of imbecility. So far as I can ascertain, the statements as to the existence of the disease in Vermont and New Hampshire rest on a paragraph in Buckminster Brown's article on cretins in Switzerland:² "Simpletons or idiots are to be met with in the valleys of Vermont, New Hampshire, or Scotland." There is no reference to cretinism in Dorr's³ account of the prevalence of goitre in the valleys of the Green Mountains. Trask, of Windsor, Vermont, speaking of the prevalence of goitre among the early settlers in the valley, says: "In most countries goitre is connected with a species of mental imbecility called cretinism; but in the United States, thanks to God, it is a mere corporeal affection."

Praslow's account of the occurrence of cretins in California I have not seen, but I have letters from several correspondents in that State who know nothing of its existence at present, while in the State Insane Asylum, at Stockton; Dr. Hoisholt tells me, there are only two cases.

Barton,⁴ whose essay on goitre, published in the year 1800, is one of the few systematic attempts to study the distribution of this disease in America, states: "I have heard of some cases of cretinism among the Indians inhabiting the neighborhood of Sandusky. But such cases are undoubtedly very rare in North America. This circumstance, as I have remarked, is well calculated to show that goitre and idiotism are not necessarily connected with each other."

Here and there one meets with the assertion that cretinism occurs in Lower Canada among the French, but I have not been able to trace the allusion to its source or to verify the fact of its existence. Some years ago I looked through two of the large institutions for children in Montreal, and the Longue Pointe Asylum, without finding any, and two cases supposed to be cretins, at Cacouna, proved to be remarkable rhachitic dwarfs.

The more recent literature descriptive of cases is also very scanty. Jacobi, in the *Hospital Gazette*, N. Y., 1879, vol. v., described briefly a case, the first on record in this country—a child of eight years. Johnson's paper, in the *Detroit Review of Medicine*, January, 1873, contains no statements about cretinism in America.

¹ AMERICAN JOURNAL OF THE MEDICAL SCIENCES, April, 1851.

² *Ibid.*, 1847, ix. p. 111.

³ New York Medical Depository, x.

⁴ Benj. Smith Barton, Professor of Materia Medica in the University of Pennsylvania. "A Memoir Concerning the Goitre as it Prevails in Different Parts of North America." Pp. 93. Philadelphia, 1800.

Last year two cases were reported; one by Lloyd,¹ from the Philadelphia Hospital; the other by C. W. Townsend,² of Boston. Huber, in the discussion on Townsend's case, stated that the disease was not very uncommon among the children "in the tenement districts of New York, owing to the influx of immigrants," but no definite data are available as to the facts of its prevalence.

ENDEMIC GOITRE.—Endemic cretinism occurs only in localities in which goitre prevails extensively, and the above observations, which have led in Europe to statements as to the prevalence of it here in endemic form, have been based in reality upon incidental references to, and studies upon, goitre, made for the most part in the early part of the century. So far as I can learn, the disease has not and does not occur endemically in this country. It may be interesting to note certain facts about goitre which I have gleaned in my inquiries, but which, however, refer to this malady only so far as it might be related to the existence of cretinism in a locality. Hirsch³ is again our chief authority as to its prevalence; and, as he remarks: "Our information on the endemic occurrence of goitre in North America belongs for the most part to the early years of this century and is very fragmentary." Barton's memoir already referred to, and the articles of W. Gibson⁴ and of Mease⁵ contain the most authentic information as to its prevalence, from which subsequent writers have drawn their information. Without entering into details which are available in Hirsch's work, it may be stated that goitre has been described as prevailing among the French Canadians along the Detroit River, and along the Richelieu River between St. John and Montreal; in the valleys of Vermont and New Hampshire; in the central parts of New York about the smaller lakes; in Central Pennsylvania; in the mountainous districts of Maryland, Virginia, and the Carolinas; and in Alabama. From a majority of these localities we have no recent observations. I have written to a number of physicians in the towns of New England mentioned by Dorr⁶ as very much affected, and so far have had only negative answers. Thus Dr. R. Clark, writing from Windsor, Vermont, one of the towns mentioned by the early writers, says that in the past fifty years he has not heard of its being very prevalent; and Dr. Emerson, who formerly practised at Chester, Vermont (a town one-half of the inhabitants of which were stated by Dorr [1806] to be subjects of goitre), writes that "During seven years' residence in Vermont I do not recall seeing more than three or four cases of goitre, and I do not think that it prevails to any

¹ International Clinics, vol. ii., series 2.

² Archives of Pediatrics, Nov. 1892.

³ Op. cit., p. 149.

⁴ The Philadelphia Journal of the Medical and Physical Sciences, vol. i., 1820.

⁵ American Medical Recorder, Philadelphia, 1818.

⁶ New York Medical Repository, 1806.

special extent." Dr. R. J. Preston, of the Southwestern Lunatic Asylum, Marion, Virginia, has very kindly made inquiries as to the existence of the disease in some of the southwestern counties of that State, in which, as stated in Gibson's *Surgery*, the disease formerly prevailed, and here, too, it seems to have almost disappeared. Dr. W. Taylor, of Talladega, Alabama, who is the authority quoted by Hirsch in support of the statement that there is a "good deal of it" in the northern counties of that State, writes (1893): "Since that time [1854] my views on the subject have been greatly modified. With a much larger population there are now really fewer cases of goitre to be found in Talladega and adjacent counties than in the earlier period of their history. . . . The fact remains that there has been a great decrease in the prevalence of goitre during the past thirty years, and the percentage of cases will not surpass the average in other States and communities."

In the Province of Quebec cases of goitre are by no means rare, and in Montreal the disease is certainly more frequent in hospital practice than in Philadelphia or Baltimore. I have no information of any localities in which it could be said to be endemic, attacking a very large number of persons.

In the neighboring Province of Ontario, in the limestone regions at the end of Lake Ontario, the disease is very prevalent. In response to my inquiry about cretins, Dr. C. K. Clark, of the Kingston Asylum, mentions the extraordinary prevalence of the disease. Thus in an asylum population of about 600 there are 288 cases of goitre. He writes:

"The goitres are generally developed when the patients are admitted to the asylum, and it is rarely indeed that we see recent cases unless among the employés. After studying the subject carefully I have come to the conclusion that Eastern Ontario is a distinctly goitrous district, and I do not believe that outside practitioners have given the matter any attention. It is difficult to get accurate statistics even from asylums, and for this reason I have never published the returns sent in from nearly every hospital for the insane in America. A superintendent would answer my circular and state that his institution was without goitrous patients. I would go to his institution myself and probably find twenty or thirty goitres. The inference was plain, and when institutions side by side gave returns showing marked differences the inference was plainer still.

"Outside practitioners about Kingston have written nothing of interest in connection with the subject, but I find goitre prevalent even among the lower animals; most of the curs about the asylum have goitres, some of them so large that anyone can notice them. The tendency to this disease seems to run in certain strains, and the young of some families of dogs and horses are invariably goitrous. In two cases of human beings

goitres have proved fatal through pressure. At one time I was inclined to believe that mental disease might be the factor determining the presence of goitre in so many of our people, but am now convinced that this alone will not account for the condition of affairs at the Kingston Asylum. The goitres met with in the insane are almost invariably incurable, probably because of long standing. Those occurring in employés are easily cured by ordinary methods of treatment. With some there seems to be a hazy idea that people coming from about Loughboro Lake have goitre more frequently than others in this district. There is nothing to show that such is the case, and the disease seems to be common and widespread throughout Eastern Ontario.

There are no cases of cretinism in the Kingston Asylum.

Altogether, the evidence at command favors the view that in the regions of Virginia, Alabama, and Vermont in which goitre was formerly endemic, it is now very rare.

Endemic cretinism does not exist, we may say, in the United States or Canada, nor is it at all probable, from what we can learn, that it has ever existed. My inquiries have not extended to Mexico, nor, indeed to New Mexico, in which it is stated that both goitre and cretinism occur.

SPORADIC CRETINISM.—Independently altogether of the occurrence of endemic goitre, cases of cretinism are known to occur here and there in all civilized countries, and the inquiries which I have made in this country relate particularly to the existence of this form of the malady. Its rarity may be gathered from the fact that up to date, so far as I can ascertain, there have been but three cases put on record. My attention having been called to the subject by the appearance in rapid succession of three cases at the Johns Hopkins Hospital, I thought it would be of interest to the members of the Association, particularly in connection with the discussion upon myxœdema, to ascertain somewhat more accurately the prevalence of the disorder. Accordingly I sent out letters to all the asylum superintendents in the United States and Canada, and to the various institutions for feeble-minded and idiotic children, asking information as to the existence of the disease. I wrote also to physicians practising in various localities in which it had been stated that goitre prevailed endemically. Among the replies which I received were descriptions of many cases of idiotic children which were evidently not cretins; but, in addition to the hospital cases I have referred to, there were eight well-characterized examples, the description of which will be given. In addition, from various superintendents there were statements as to the existence or occurrence of five or six other cases. The interest in the subject is at present a very practical one, inasmuch as the observations on the beneficial effects of thyroid feeding have been shown in several cases, particularly in those seen within the first three

or four years of life. I have at present two cases under treatment, but both for such a short time that it is impossible to say as to the change in the condition.

CASE I.—M., aged (now) two years and three months, was brought to me from the Eastern Shore of Maryland, January 10, 1892. The parents (first cousins) are healthy and strong. No hereditary ailments on either side nor members of the family have had goitre. The patient was the second child the labor was easy, and she thrived well. Nothing special was noticed about the child until the end of the first year, when it was suspected something might be wrong, as she had not cut her teeth, and did not attempt to walk or to talk. Throughout her second year she grew fairly well, but had several attacks of slight fever, and did not develop as other children, making no attempts to crawl or to walk, and seemed unnaturally quiet and dull. She did not cut the incisor teeth until she was nearly two years old. Within the past six months she has changed remarkably in color, has become very pale and waxy, and the face and limbs seem puffy and swollen. She has taken milk well, and has developed a little mentally; smiles, and attempts to repeat her own name when it is said, and has learned to say "mamma" and "papa."

Present condition. Under-sized child for her age. Aspect is very striking color pale; face, very broad across; the mouth is open; tongue protrudes and is evidently enlarged; the lips are full and heavy; the cheeks very large almost pendulous; the hair is long and straight; the eyes are blue; the sclerotics very pale; the eyelids glossy and infiltrated. The forehead is large, not badly shaped; the head well formed, rather prominent behind the anterior fontanelle is not quite closed. She looks good-tempered, but takes very little notice, and smiles in a feeble way. The facial aspect is that of a cretinoid idiot.

The muscles of the arms are feebly developed; the subcutaneous tissues are much infiltrated; the hands are swollen and glossy—not tense and look œdematous, but the infiltration is firm, and only yields on prolonged pressure. The legs look large; the thighs present several folds; the skin looks glossy, and the subcutaneous tissues are much infiltrated. The skin over the dorsal portion of the feet is very glossy and tense, and on firm pressure pits with distinctness. The abdomen is distended and the superficial veins prominent. Palpation is negative; the edge of the liver is palpable about six cm. below the costal margin. The edge of the spleen is not palpable, nor does the organ appear to be enlarged. The thorax is well formed no trace of rickety enlargement of the ends of the ribs; no evidences of rickets in the long bones. The apex-beat of the heart is just within the nipple line. There is a systolic murmur with the first sound, which is loud and intense at the pulmonary cartilage; the breath sounds are clear. There is no enlargement of the superficial lymphatic glands; the thyroid gland is not enlarged; the cricoid cartilage can be well felt, as can also the entire trachea as low as the sternum, and it can be taken between the two fingers quite plainly. Dr. Halsted thought he could feel the thyroid beneath the sternomastoid muscle. The percussion note on the first bone of the sternum is

clear. The examination of the blood showed a moderate increase of leucocytes and some irregularity in the size of the red blood-corpuscles.

The condition was diagnosticated as sporadic cretinism. As it was evident that the blood condition of the child was very much below par, she was ordered the syrup of the iodide of iron.

March 1, 1893. Patient brought again to-day. In the year and two months which have elapsed since I saw the child she has improved remarkably. She is now three-and-a-half years old. Her height is 75 cm. She looks more intelligent, takes more notice, and the facial expression is decidedly brighter. She tries to say a few words, and has begun to walk with a little assistance. The most striking changes are the disappearance in great part of the anæmia and lessening of the firm subcutaneous œdema which was so marked a feature. She still has a little infiltration about the eyelids and cheeks. The limbs also look full, and they are firm. The skin is a little glossy over the hands and feet. The tongue does not protrude so often from the mouth, though when the face is in repose it is frequently seen protruding slightly. The face looks broad and full, and the expression and aspect are still cretinoid; Head is 51.5 cm. in circumference, the abdomen 54.5 cm. The neck is thick and short, and presents a large transverse fold of fat. The thyroid gland is not palpable, and below the thyroid cartilage the trachea can be felt with the greatest distinctness and grasped between the fingers down to the sternum.

The favorable reports from cases of sporadic cretinism treated with the thyroid extract encouraged us to try it in this case, and the child has been taking the glycerin extract of the sheep's thyroid in an amount corresponding to about a quarter of a gland in the twenty-four hours. No special change is as yet noticed after nearly a month's treatment.

CASE II.—Emma—, aged nineteen years; brought to the Johns Hopkins Hospital by her mother, March 3, 1893. The family history is good; parents are not blood relations; no thyroid enlargement; no history of mental troubles. Patient is the second child; delivery was not instrumental; she was healthy when born; fat and well; nursed for nearly a year, and it was not until the end of this time that it was noticed that she was backward in development. She did not seem to grow and thrive as other children, though she took her food well, and was in other respects quite healthy. For several years it was thought that she was completely idiotic, as, though she took notice and seemed to know what was said to her, she did not walk or talk, but had to be held in the lap, and the tongue was constantly protruded from the mouth. She did not begin to cut her teeth until the third or fourth year. They decayed early and rapidly, and her second dentition did not begin until she was past her twelfth year. The anterior fontanelle did not close until after her eighth year. She did not begin to walk until her twelfth year. She has never learned to read or to write.

Present condition. Her height is three feet nine inches. She walks readily; the feet are turned out a little, and there is a somewhat waddling, uncertain gait, with the hands spread. The face has the characteristics of a cretin. The expression is pleasant; she smiles brightly, and looks good natured, but has a childish, somewhat silly expression. She sits quietly, as a rule, with

her mouth shut, but sometimes the tongue protrudes between the lips. The face is broad, and all the features thick and coarse. The nose is *retroussé*, the nasal orifices very apparent, and the alae thick, and measured across the margins fully 5 mm. in thickness. The lips are thick and full; the cheeks prominent, large, and broad. In the upper jaw the lateral incisors are absent; the central incisors are of fair size, the enamel much eroded; the canines are small, also with defective enamel. The premolars and molars are small and much decayed. In the lower jaw the teeth are all present, but they are irregular and show the same character of defect. The roof of the mouth is much vaulted, the palate is not defective. The forehead is full, a little prominent in front; the head is long; the occiput projects, and it is broad immediately behind the parietal eminences. The occipital arches are much developed, and there are thick ridge-like projections at the line of the squamo-parietal sutures. The circumference of the head is $54\frac{1}{2}$ cm.; from the tip of one ear to the tip of the other, 27 cm.; from the occipital protuberance to the glabella, 38 cm. The ears are well formed.

The neck is 36 cm. in circumference. The thyroid gland is distinctly enlarged; the left lobe more than the right. The hands and arms are well formed; there is no enlargement of the epiphyses. She uses her fingers well, and can feed herself and pick up small objects, but the movements are somewhat clumsy, and she is unable to dress or undress herself. The legs are firm and strong; not bowed. The gait is as above mentioned; she falls easily, and, as her mother expressed it, has no elasticity. She is flat-footed. The knee-jerk seems slightly increased. The body looks squat and full; the thorax is capacious; the back shows a moderate antero-posterior curvature. The abdomen is large. Examination of the thoracic and abdominal organs negative.

She is well nourished, and the subcutaneous tissues are firm but do not pit, and there is no appearance like that of myxœdema; it is only in the thickness of the features that the condition is suggested.

She talks a great deal; the voice is high-pitched, very difficult to understand. Some words she speaks clearly, and she talks and behaves very much as a child of two or three years. She is easily amused; showed with great pleasure and childish joy a little new ring, and is very fond of pretty things. She has a very good musical ear; can sing several little songs. She is very good-hearted and generous, and always very anxious, if she has anything nice, that the servants, who are devoted to her, should share it. She is, however, self-willed, and does not like to be thwarted. She began to menstruate eighteen months ago.

CASE III. (Dr. Booker.)—Minnie R., white, aged three and one-half years came to Johns Hopkins Hospital Dispensary November 25, 1892. She was born in Lebanon, Pa., and lived there until one year ago, when she was moved to Steelton, Md. Born in natural labor; mother had only three hard pains; was a fat, healthy child up to second summer; when one year old had summer diarrhœa, about sixteen stools daily for a month; after that the bowels became regular, and the child improved for a short while, then began to waste again without anything to account for it. She had no cough, no fever. There appears to have been no growth and no improvement since the attack of diarrhœa at one year of age, excepting the slight improvement

which came on soon after the diarrhœa had been relieved, and lasted a short time. Parents are healthy, and no hereditary tendency. Mother has a younger child living and healthy; she never had a miscarriage. The child was brought to the dispensary on account of an almost constant crying, which had existed for three months. Appetite good; bowels regular; no fever; sleeps well.

Present condition. Child is thin, but not emaciated; is pale, with yellow tinge. Skin is dry, sealy, inelastic, in great folds, and appears much too large for the body. Numerous small lumps can be felt under the skin over the abdomen. Face has an idiotic or stupid expression; lips thick and coarse; tongue broad and thick, and protrudes a little between the open lips; child has only the four central incisor teeth, which are already decaying and nearly black. (The two lower incisors were cut in August, when one year of age, and just before the diarrhœa commenced. The following October was the time of slight improvement in the general nutrition of the child, and at this time the two upper incisors were cut; since then she has had no other teeth.) The nose is flat and broad; forehead low, and the head covered by thick, coarse, chestnut-colored hair. Strabismus in both eyes; fissures of the eyes very small. There is some enlargement in the neck in the region of the thyroid gland, but it is not certain that it is the thyroid. Also a thickening behind the sterno-cleido-mastoid over the clavicle. The limbs appear relatively short; they are thin, and the skin is very loose and in great folds over the limbs. Hands are large, spade-like, and the skin rough and in folds over the hands. Right wrist has been slightly œdematous for several days. Abdominal organs do not appear to be enlarged; spleen not felt. Lymphatic glands of body enlarged. Weight, twenty-seven pounds; length, 69 cm. Temperature, 98.4° in rectum. Child cannot walk nor talk; mother said it could say "mamma" and "papa," but the child does not look intelligent enough for that. Blood examination; normal amount of white elements, some of which contain pigment; crescents and cellular bodies found.

The child was under observation until February, 1892. She was treated with quinine and arsenic, and for a while appeared to improve; she was able to sit up, which was more than she could do when brought to the dispensary. When last seen at the dispensary, February 10, 1892, she had about lost what had been gained, and was pretty much as when we first saw her.

The mother said the child had got all its growth in the first year, up to the time it had the diarrhœa; that since then there appeared to have been absolutely no growth.

CASE IV. (Dr. Rotch and Dr. Bullard.)—G. S., female; aged six years, American, parents not blood relations, not the subject of goitre. Does not speak; mental condition is much enfeebled. Circumference of the head is 46.5 cm.; measurement from occiput to roof of nose, 34.4 cm.; across the head from external meatus to external meatus, 29.3 cm. There is the general condition of infiltration like myxœdema of the skin. The thyroid gland is not to be felt. Circumference of thorax is 40 cm. The bones are somewhat enlarged about the epiphyses. The front teeth are good. (This case will be published in full by Dr. Rotch.)

CASE V. (New York Custodial Asylum for Feeble-minded Women; Dr. Brownell.)—Sarah McG., aged nineteen years, American, parents temperate.

She is 86.5 em. in height; weight, 41 pounds. The complexion is sallow; voice discordant, harsh. She sleeps well; is good-natured, and is seldom ailing; is a great favorite in the household. Largest girth of head, 52 cm.; from nose to occiput, 35.5 em.; from ear to ear over vertex, 26.7 em.; girth of neck, 29.3 cm.; girth of chest, 54.5 cm.; girth of abdomen at umbilicus,

FIG. 1.



FIG. 2.



Case V. Sarah McG., aged nineteen.

62.5 em. The abdomen is protuberant and the chest is narrow; the legs are perfect, but the knees incline inward. The flesh of the hands and feet looks old and wrinkled; the teeth are a good deal decayed and notched. There seems to be complete atrophy of the thyroid gland; there is fulness in the supra-clavicular fossæ; there is marked curvature of the spine, both lateral and antero-posterior.

CASE VI. (Indian School for Feeble-minded Children: Dr. Van Swearingen).—Louisa S., aged fourteen years, born in America, parents not related no goitre in the family; nationality German. Height, 110.5 em.; circumference of head, 56 em.; from occiput to root of nose, 33 cm.; from external meatus to external meatus, 26.7 em.; circumference of neck, 28 cm. The skin is loose and flabby, elastic and soft, very abundant. She is a deaf-mute but appears quite intelligent. There is no curvature. The throat is 57.5 em., abdomen, 68.6 cm. The limbs seem a little enlarged about the

epiphyses. There is no goitre, and there is no trace to be felt of the thyroid gland.

CASE VII. (Syracuse State Institution for Feeble-minded Children: Dr. Carson.)—Martha L. Y., aged sixteen years; parents Americans, not related. Height, 103 cm.; circumference of head, 54.7 cm.; measurement from occiput to root of nose, 32.5 cm.; across head from external meatus to external meatus, 34.4 cm.; circumference of neck, 34.4 cm. The subcutaneous tissues appear infiltrated and myxœdematous, and there are tumor masses behind the sterno-mastoid muscle. The thyroid gland is apparently absent. The circumference of the thorax is 67.5 cm.; of the abdomen, 71.2 cm. The bones of the limbs are a little enlarged at the epiphyses. The teeth are defective. She is feeble-minded, but appears to understand what is said; can only say a few words; answers "yes" and "no." Is cleanly in habits; knows the names of objects, and can match colors.

Dr. Carson writes: "The child presents almost the characteristic features described in cretins by Dr. Down, namely: absence of the thyroid gland, puffy swellings in the supra-clavicular space; skin of an earthy color, loose, and flabby, as if too large for its body; the nose flattened; the distance between the eyes exaggerated; tongue large; lips thick; cranium brachycephalic. She speaks only a few words in monosyllables, and though occasionally stubborn, is usually of a placid disposition, laughs easily and heartily; is orderly and cleanly in her habits.

CASE VIII. (State Insane Asylum, Stockton, Cal.: Dr. Hoisholt.)—Willie V., aged forty-two years; father was Irish, mother German; no note as to the presence of goitre. Height, 135 cm., circumference of head, 55.3 cm.; from occiput to root of nose, 35 cm.; from external meatus to external meatus, 33 cm.; circumference of neck, 38.4 cm. The skin is very loose, and in places hangs in large folds. The head is brachycephalic. The skin of the face in smiling is wrinkled. He is imbecile. The thyroid is not enlarged. There are no definite tumor masses above the clavicle; the spine is not curved. He is said to have been much brighter some years ago. The last three years he has had occasional epileptic fits.

CASE IX. Johnny V., brother of the preceding case, aged forty years. Height 127 cm.; circumference of head, 58.5 cm.; from occiput to root of nose over the head, 29.5 cm.; from external meatus to external meatus, 38.3 cm. The skin is extremely loose; hangs in folds. On the scalp one may make a fold of four inches of superfluous skin; same on the neck, face, and back. The intelligence is very defective; speech scarcely intelligible; he is not at all bright, except that he has, under the circumstances, a remarkable memory for names, remembering those of from thirty to forty patients in the ward. The thyroid gland is not enlarged.

The photographs of these two patients show marked brachycephalic heads, wide nostrils, the eyes wide apart, and the condition of the skin described by Dr. Hoisholt appears to be fairly characteristic.

CASE X. (Randall's Island Hospital, New York: Dr. Furness.)—Nellie R., aged fifteen years, born in New York State. Height, 76.3 cm.; circumference of head, 48.4 cm.; from occiput to root of nose, 30.5 cm.; from external meatus to external meatus, 31.2 cm. The skin is coarse and thick, and there are tumor masses above the clavicles. The thyroid is not enlarged. Circum-

fereuce of the thorax, 54.7 cm.; of abdomen, 51 cm.; it is distinctly pendulous. She can only stand with assistance. The epiphyses of the limbs seem somewhat enlarged. Intelligence is extremely slight, and she never talks, but can call the name of the nurse. She is affectionate in disposition, and on recognizing the Doctor utters a peculiar shrill cry.

The Doctor writes that the child looks about the age of three years; is unable to walk or to stand erect without support. The photograph illustrates a typical cretin.

CASE XI. (Inmate of the California Home for Feeble-minded Children Dr. A. E. Osborne.)—I. N., female, aged probably thirty-five years; nationality unknown, supposed to be Irish; no data about the parents. Height 108 cm.; circumference of the head 56 cm.; measurement from occiput to root of nose, 35 cm.; circumference of neck, 38.3 cm.; circumference of thorax, 81.3 cm.; of abdomen, 84 cm. The face is broad and flattened the skin rough, and hangs in folds over the body; the complexion is sallow the hair very scanty and coarse; the teeth are defective, only half a dozen in the upper and lower jaws; no thyroid gland is palpable; the spine is slightly curved. The intelligence is of a low order, but her memory is good. The disposition is docile. She is tractable and affectionate, and forms strong attachments. She is quick to appreciate a favor, and has a fair sense of humor. The speech is slow and measured; the voice rather low and rasping. Respiration is slow, and the body temperature is below normal.

OPERATIVE MYXŒDEMA.

In connection with the subject of myxœdema, I am indebted to Dr. McGraw, of Detroit, for photographs illustrating the following case which, so far as I know, is as yet happily unique in American surgery—namely, one of operative myxœdema:

CASE XII.—The patient, George M., is now about thirty years old, and was operated on March 7, 1881. Complete extirpation of the thyroid. The photograph [exhibited] was taken March 30, 1893. A full description of the case will be published by Dr. McGraw. Suffice it to say here that there has been a gradual but progressive change in this young man since the date of the operation. The hair is scanty and coarse; the skin thick and rough the subcutaneous tissues very thick; the integument and underlying tissues make great ridges on the back and on the hands and feet. The intelligence is good, but the action of the intellect is slow, and he is unable to do any continuous work or to study. He complains of fulness in the head and ringing in the ears when he stoops. Even in standing he is not steady on his feet, and has a tendency to fall. Temperature is normal; pulse, 70; respirations, 20. Heart's action is normal. Voice is harsh and squeaky.